



ORIGINAL ARTICLE

## Predictors of locoregional recurrence in early stage buccal cancer with pathologically clear surgical margins and negative neck

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Received 1 August 2017; accepted 12 September 2017

### KEYWORDS

Mouth neoplasms;  
Margins of excision;  
Neck dissection;  
Recurrence

### Abstract

**Objective:** To identify the significant predictors of locoregional recurrence in early stage squamous cell carcinoma (SCC) of buccal mucosa with pathologically clear surgical margins and negative neck.

**Method:** Seventy-three patients who underwent per oral wide excision and supraomohyoid neck dissection for early stage buccal SCC with clear surgical margins (>5mm margins each) and negative neck (N0) were included. None of the patients received postoperative radiotherapy or chemotherapy. Univariate and multivariate analyses were used to identify independent predictors of locoregional recurrence.

**Results:** Recurrence was observed in 22 of 73 (30%) cases. Twelve had local, seven had regional and three developed locoregional recurrences. Both univariate and multivariate analyses demonstrated that lymphovascular invasion (LVI) and non-T4 muscular invasion (non-T4MI) were independent predictors affecting locoregional control.

**Conclusion:** Lymphovascular invasion (LVI) and non-T4 muscular invasion (non-T4MI) significantly increased the locoregional recurrence rate in early stage buccal SCC with clear surgical margins and negative nodal status. Adjuvant treatment with either radiation or chemoradiation should be considered when one or both of these factors present.

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## PALABRAS CLAVE

Neoplasias de la boca;  
Márgenes de la excisión;  
Disección del cuello;  
Recidiva

## Predictores de recidiva locoregional en cáncer temprano de mucosa bucal con márgenes quirúrgicos patológicos libres y cuello negativo

### Resumen

**Objetivo:** Identificar los predictores significativos de recidiva locoregional en el carcinoma de células escamosas (CCS) en estadios iniciales de la mucosa bucal, con los márgenes quirúrgicos patológico libres y el cuello negativo.

**Método:** Se incluyeron en el estudio 73 pacientes sometidos a extirpación tumoral y disección supraomoiidea de cuello con cáncer bucal en estadios iniciales con márgenes quirúrgicos libres (margen de 5 mm cada uno) y cuello negativo (N0). Ninguno de los pacientes recibió radioterapia postoperatoria o quimioterapia. Se utilizaron análisis univariantes y multivariantes para identificar los factores predictivos independientes de recidiva locoregional.

**Resultados:** La recidiva se observó en 22 de 73 casos (30%). Doce tenían recidivas locales, 7 regionales y 3 desarrollaron recidivas locoregionales. Tanto los análisis univariantes como multivariantes demostraron que la invasión linfocelular (LVI) y la invasión muscular no T4 (non-T4M) fueron predictores independientes que afectaron al control locoregional.

**Conclusión:** La LVI y la non-T4M aumentaron significativamente la tasa de recurrencia locoregional en el CCS bucal precoz con márgenes quirúrgicos libres y estado nodal negativo. El tratamiento adyuvante con radiación o quimiorradiación debe considerarse cuando se presentan uno o ambos de estos factores.

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## Introduction

Early stage (I and II) buccal squamous cell carcinoma (SCC) is mainly treated by wide local excision of tumor +/- neck dissection. Even after surgery, there is high locoregional failure rate which results in increase morbidity to patient.<sup>1</sup> Several adverse features result in this elevated failure rate, including extracapsular spread of node, positive margin, involvement of more than two nodes, lymphovascular invasion (LVI), perineural invasion (PNI), and tumor thickness of >4 mm,<sup>2,3</sup> so presence of any of these factors are indicator for adjuvant treatment in the form of radiation or chemoradiation which is also mentioned in National Comprehensive Cancer Network (NCCN) Head and Neck cancers guidelines.<sup>4</sup>

There are few reports in the literature analyzing the prognostic predictors for early stage buccal SCC particularly from our region. The aim of this study was to identify the significant predictors of locoregional recurrence in a cohort of previously untreated early stage SCC of buccal mucosa with pathologically clear surgical margins and negative neck.

## Materials & methods

We retrospectively reviewed the medical records & pathology reports of patients with buccal SCC who received treatment in Liaquat National Hospital Karachi from January 2007 to December 2011. Patients fulfilling the following criteria were included in our study: (1) Biopsy proven buccal SCC treated with per oral excision; (2) T1 or T2 clinical and pathological stage; (3) clear surgical margins (>5 mm margins each) in pathology specimen; (4) clinically and pathologically no evidence of neck node involvement (N0). In our institution all stage I (T1N0M0) and stage II (T2N0M0)

buccal lesions are treated with wide local excision of tumor and ipsilateral supraomohyoid (level I-III) neck dissection. None of the patients received postoperative radiotherapy or chemotherapy. Patients were excluded if: (1) Buccal lesions involving commissure, lip, upper alveolus, mandible, floor of mouth, tongue or retromolar trigone; (2) received treatment from outside; (3) recurrent tumors; (4) distant metastasis; (5) lost to follow-up (minimum follow-up of 5 years). All tumors were staged according to the TNM staging system, as proposed by the 2002 American Joint Committee on Cancer (AJCC).

The primary endpoint of the study was local, regional or locoregional recurrence. Local recurrence was defined as the occurrence of the same malignancy arising from the original tumor beds as proven by incisional or excisional biopsy. Regional recurrence referred to neck metastases proven by fine needle aspiration cytology or biopsy of lymph nodes in dissected or un-dissected levels. Locoregional recurrence when tumor appears in both primary site and neck.

Data was analyzed by using SPSS version 21. Descriptive statistics were computed for quantitative and qualitative variables. Univariate and multiple logistic regression analysis were used to determine association of variables with recurrence. All odds ratios were reported with a 95% confidence interval. *p*-value <0.05 was considered to be statistically significant.

## Results

A total of 73 patients were found eligible for the study. Patient characteristics are listed in Table 1. Mean age of patients was 49.00 ± 12.76 years (range, 20–86 years). Seventy one percent cases were aged >40 years. Out of

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